

REMARKS

The present claims relate to a photosensitive composition.

Amendment summary

Upon entry of this Amendment, claims 1-8 and 10-11 will be pending.

Claim 4 is amended to recite that the substituent group on the substituted aryl group is selected from the group consisting of an ester group and a cyano group. Support for this amendment is found on, e.g., the last two lines of page 30 of the specification.

Claims 1 and 8 are amended to recite that the sensitizing dyes therein have a specific chemical structure, which Applicant notes corresponds to the chemical structure recited in claim 4.

Claim 5 is amended to recite that Ar represents an aromatic ring or heterocyclic ring having at least one substituent group selected from the group consisting of an ester group and a cyano group. Support for this amendment is found on, e.g. the last two lines of page 30 of the specification.

Claim 9 is canceled.

New claim 10 depends from independent claim 1, and recites that the substituent group in the substituted aryl group is present at an ortho position on the substituted aryl group skeleton. Support for this amendment is found on, e.g., the sentence bridging pages 30 and 31 of the specification.

New claim 11 depends from independent claim 1, and recites that the photosensitive composition of claim 1 is present in a photosensitive layer in a lithographic printing plate precursor. Support for this claim is found on, e.g., the paragraph bridging pages 115 and 116 of the specification.

No new matter is added by this Amendment, and Applicant respectfully submits that entry of this Amendment is proper.

Status of the claims

In the Office Action of September 27, 2006, claim 8 was allowed. Claims 4 and 9 were rejected under 35 U.S.C. § 102(b) as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as allegedly being obvious over Murota et al (EP 1048982) (hereinafter “Murota”). In addition, claims 1-7 and 9 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Murota.

Response to §§ 102/103 rejection based on Murota and § 103 rejection based on Murota

In the Office Action, claims 4 and 9 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as allegedly being obvious over Murota. Claims 1-7 and 9 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Murota.

As an initial matter, Applicant notes that claim 9 is canceled. Applicant therefore respectfully requests the withdrawal of the rejections as they pertain to claim 9.

With respect to the anticipation aspect of the §§102/103 rejection, Applicant notes that the claims recite that the substituent group on the substituted aryl group is selected from the group consisting of an ester group and a cyano group, which Applicant has shown provide dyes with superior properties. Murota, on the other hand, discloses only a long laundry list of substituted aryl groups, with no indication that the presently claimed substituents are preferred. Therefore, Applicant respectfully submits that Murota does not anticipate the present claims.

With respect to the obviousness rejections, Applicant refers to the Declaration previously submitted, which shows the unexpectedly superior results of the present invention. The Office Action apparently took the position that Applicant's increased sensitivity of Example 5 over the Comparative Example in the Declaration did not show unexpected and superior results because of the teaching in Murota to add additional co-sensitizers to increase sensitivity.

Applicant respectfully disagrees with this interpretation of both the Declaration and of Murota. For the Examiner's ease of reference, Applicant submits again a description of the contents of the Declaration:

The Declaration demonstrates the unexpectedly superior results of the present invention and thus further supports the patentability of the present invention.

Specifically, in the Declaration, photosensitive materials of Example 5 and a Comparative Example were prepared. Example 5 is described in the present application and contained compound A-5, i.e., hexaaryl biimidazole as an initiator (HABI). The Comparative Example is the same as Example 5, except that compound A-10 was used as the initiator instead of compound A-5. As shown on page 176 of the present specification, compound A-10 is a

titanocene compound. The photosensitive materials of Example 5 and the Comparative Example were then evaluated in terms of safelight stability, and the results are reproduced in Table 1 below:

Table 1. Result of Performance Evaluation

	Initiator System			Coating Amount (mg/cm ²)	Clearing Sensitivity (mJ/cm ²)	Safelight Stability
	Sensitizing dye (Xg)	Initiator (Yg)	Co-sensitizer (Zg)			
Example 5 (described in the present specification)	D1 (0.07)	A-5 (0.10)	C-1 (0.5)	1.2	0.25	Good
Comparative Example	D1 (0.07)	A-10 (0.10)	C-1 (0.5)	1.2	0.30	Poor

All the symbols in Table 1 have the same meanings as described in the present application.

As the results in the above Table 1 show, the photosensitive material of the Comparative Example, which contained a titanocene initiator, gave rise to fog under a yellow light safelight. In contrast, the photosensitive material of Example 5, which contained a hexaaryl biimidazole initiator, did not give rise to fog under a yellow light safelight.

In the case of making a lithographic printing plate from a precursor thereof in the art, the precursor is sometimes treated under a yellow safelight. When a titanocene compound is used in a lithographic printing plate precursor, polymerization proceeds to some extent since the titanocene has an absorption spectrum slightly overlapping with the transmission spectrum of the yellow safelight. This phenomenon is called "fog due to dark reaction". In other words, even in the unexposed areas (the portions where no image is formed or the portions that are desired not

to cause polymerization reaction), polymerization occurs, and thus such areas remain since the portions are not removed by development. The remaining areas attract ink during printing, appearing as stains. Accordingly, use of titanocene is not suited for cases where a lithographic printing plate precursor is handled under a yellow safelight.

As noted above, the Office Action apparently took the position that Applicant's increased sensitivity of Example 5 over the Comparative Example in the Declaration did not show unexpected and superior results because of the teaching in Murota to add additional co-sensitizers to increase sensitivity. Applicant respectfully submits that the Declaration clearly shows that compositions that differ only in the initiator used (A-5 versus A-10) have different clearing sensitivities. The Declaration specifically kept the amount of co-sensitizer in both experiments equal so as to test the impact of the initiator on the final composition. The Office Action appears to discount this finding because, allegedly, one may increase the sensitivity of the Comparative Example by simply adding more co-sensitizer. However, the purpose of the Declaration was not to show that it was not theoretically possible to add so much co-sensitizer to the Comparative Example that it had a similar clearing sensitivity to Example 5. Rather, the Declaration shows that the claimed initiator provides unexpectedly superior results, which could only be shown if all other components of the compared experiments were kept constant, which they were. Hence, Applicant respectfully submits that the Declaration does show that the present invention has unexpectedly superior safelight stability and sensitivity, and that the present claims are therefore not rendered obvious by the disclosure or teachings of Murota.

In addition, Applicant notes that it is important to carefully select the electron-withdrawing group in order to impart an appropriate LUMO (Lowest Unoccupied Molecular Orbital) energy level, so that both sensitivity and stability are satisfactory. Regarding sensitivity, the electron-withdrawing group on the aryl group of the dye of the present invention influences the LUMO levels. Accordingly, it is unrelated to the efficiency of the electron transfer or the energy transfer to the initiator compound, and influences the sensitivity of the photosensitive composition. However, increasing the sensitivity is generally unfavorable from the standpoint of preservation stability, which is why it is important to carefully select the electron-withdrawing group in order to impart an appropriate LUMO level.

Applicant respectfully submits that the present invention shows that ester groups and cyano groups are especially superior in this respect because higher sensitivity can be obtained by using, for example, the sensitizing dyes used in Examples 13 to 16 of the specification. Murota, on the other hand, does not disclose or suggest the effect that the ester groups or cyano groups have in the claimed invention. Applicant therefore respectfully submits that Murota does not render obvious the present claims.

In view of the foregoing, Applicant respectfully submits that the present claims are not anticipated or rendered obvious by Murota, and Applicant respectfully requests reconsideration and withdrawal of these §§ 102/103 and § 103 rejections.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

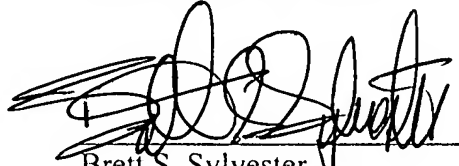
AMENDMENT UNDER 37 C.F.R. § 1.111
Appln. No. 10/813,136

Atty. Docket No. Q80850

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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